10,000-Year-Old Inventions of the Heirs of the Indus Civilization

By Ruk Sindhi

The people of the Indus Valley have played a significant role in the construction and progress of the world, just like other nations. The sweat and labor of the people of Sindh have contributed to the pinnacle of development the world has achieved today. Thousands of years ago, the journey that humanity embarked upon left its footprints in the Indus Valley as well. The civilization that emerged in the Indus Valley 10,000 years ago was geographically spread over a vast area of approximately 500,000 square miles, larger than all other Asian civilizations. Its expanse reached the borders of Russia. The region of the Indus Civilization was four times larger than Babylon and twice the size of Egypt. The area of the Indus Civilization encompassed present-day Pakistan, Indian Punjab, western Uttar Pradesh, Haryana, Kutch, Kathiawar, Gujarat, Maharashtra, and parts of Afghanistan. At that time, the Indus state was likely divided into five provinces, with Mohenjo-Daro as its center, and present-day Sindh being the central province.

Evidence of human settlement in the Indus Valley dating back 500,000 years has been found. Such evidence was discovered by experts near the Luni River in Nagarparkar, where tools used by humans from the Paleolithic era were also unearthed.(1) This means that 500,000 years ago, the inhabitants of this region abandoned a nomadic lifestyle and began settling in one place, a milestone in the history of human progress.

In the Indus Valley, evidence of human settlement and tools used by them dating back 50,000 years has also been found in the hills of Rohri. (2) These tools were used for hunting animals and birds.

Below, we provide a brief overview of the significant inventions made during the Indus Civilization to highlight the contributions of the people of Sindh to global progress and the knowledge and inventions they passed on to the world thousands of years ago.

Discovery of Fire

Evidence of the discovery of fire in the Indus Valley dates back 50,000 years. This means that the inhabitants of this valley were among the first in the world to discover fire. The discovery of fire proved to be a major leap in the progress of human life. (3)

Beginning of Agriculture

In the Indus Valley, 15,000 years ago, the inhabitants began tilling the land, cultivating crops, and domesticating animals. Evidence of this has been found in ancient sites around Rohri, Karachi, Hyderabad, and the Manchar Lake region. (4)

Construction of Mud Houses

Evidence of building villages, constructing mud houses, and advancing agriculture in this valley dates back 8,000 years. During this period, household utensils were invented for the first time. Such evidence has been found in Mehrgarh and Amri. (5) (6)

Invention of the Potter's Wheel

In the Indus Valley, around 6,500 years ago (4000 BCE), one of the greatest inventions was the use of the potter's wheel to make pottery. This is considered the first major invention in the world, which later laid the foundation for the wheel. (7) (8)

Invention of the Wheel and Bullock Cart

Due to trade, the heirs of the Indus Civilization mastered transportation technology. The Indus Civilization was the first in the world to use the wheel for transportation. (9) They invented the bullock cart, which was a significant scientific invention and a step forward in ancient human progress.

Discovery of Metals

In Sindh, around 6,500 years ago (4000 BCE), metals were discovered. This led to the beginning of crafting tools and ornaments from copper. (10)

Foundation of Urban Civilization

The foundation of urban civilization in the Indus Valley was laid around 7,500 years ago (5000 BCE). People here began living in cities. Their houses were made of baked bricks, often two-story buildings equipped with modern-style bathrooms, kitchens, storage rooms, and wells—similar to the facilities in modern cities today. Their cities had wide roads, underground drainage systems, recreational spaces, guesthouses, and well-planned markets. Mohenjo-Daro, Harappa, and Chanhudaro were major urban centers of that era. (11)

Art of Crafting Gold Jewelry

The inhabitants of the Indus Valley laid the foundation for crafting gold jewelry 7,500 years ago. During the Mohenjo-Daro period, the art of goldsmithing in Sindh was at its peak. So many gold ornaments were found in the city of Chanhudaro that archaeologists have called it the “City of Jewelry.” From Chanhudaro, ornaments made of gold, clay, copper, and shells—including bangles, necklaces, amulets, anklets, armlets, toothpicks, earrings, hairpins, kohl applicators, and rings—have been discovered. (12) All of these were inventions of the people of this valley.

Foundation of Painting

The art of painting emerged in the Indus Valley 7,500 years ago. They created beautiful and captivating designs on baked clay pots, stones, bones, and ivory. (13) Evidence of this has been found in Amri, Mohenjo-Daro, and Chanhudaro.(14)

Invention of Chess

The Indus Valley was the birthplace of chess. Game pieces and stones with chessboard patterns have been found in Mohenjo-Daro. Even in that era, chess was played in a manner similar to how it is played today. (15)

Children’s Toys

Numerous toys have also been found in the settlements of the Indus Valley. Toys made of clay, shells, stones, and ivory have been discovered, including small clay

carts, clay bullocks, horned bullocks, rhinos, buffaloes, lions, boars, rabbits, deer, fish, crocodiles, turtles, roosters, and parrots, among others. (16)

Cultivation of Wheat

The cultivation of wheat began in Sindh. Charred but intact wheat grains have been found in Mohenjo-Daro. Peas and melons were found in Harappa, while date seeds were also discovered in Mohenjo-Daro. (17)

Textile Industry with Cotton

A significant discovery in the Indus Valley is a piece of woven cotton cloth found in Mohenjo-Daro near a copper and silver vessel, marking the earliest evidence of cotton. The art of weaving has been present in Sindh since ancient times. (18)(19) Spindle whorls for spinning thread have been found in Mohenjo-Daro, with many households yielding such tools, made of both precious metals and clay.

Cultivation of Rice

In addition to wheat and cotton, the people of Sindh also cultivated rice. Previously, it was believed that rice cultivation first began in the Philippines. However, excavations of ancient Indus Civilization sites have revealed that rice was cultivated in Sindh centuries before the Philippines. (20)

Use of Calendars

The people of Mohenjo-Daro, around 2500 BCE, used stone calendars to predict monsoon winds and flooding in the Indus River. Finnish archaeologist Dr. Erika Maula has stated that these stones are the world’s first scientific tools. Dr. Maula claims that the birthplace of science is not Mesopotamia or Egypt but Sindh. (21) (22)

Knowledge of Astronomy

The inhabitants of the Indus Valley calculated months based on the lunar cycle. They followed a lunar calendar and also determined seasons accordingly. They measured their days based on the moon’s movements. (23) The people of Mohenjo-Daro divided each season into four months. Russian mathematician A.I.

Voldrovsky has stated that computer analysis of seals found in Mohenjo-Daro reveals that the people of the Indus Valley had extensive knowledge of astronomy.

Art of Counting and Invention of Zero

The ancient inhabitants of Sindh invented the art of counting. Clay counting tokens and measuring sticks have been found in Sindh's ancient sites. The people of Sindh developed the art of counting before the art of writing and reading. According to scholar Grierson, the inhabitants of the Indus Valley were skilled at counting and keeping accounts. They counted in groups of twenty, and instead of sixty, they would say "three twenties," a practice still prevalent in Sindh today. For the first time, the people of this valley used zero (0) in their numerical system while counting in twenties. (24) (25)

Weights and Scales for Measurement

Precisely crafted stone weights have been found in Mohenjo-Daro, used for measuring. Some weights were so large that they required ropes to lift, while others were small enough to weigh gold and silver. (26) The smaller weights found in Mohenjo-Daro were made of khaki-colored slate. Scales were rarely found. Measurements at around 150 sites indicate that both the foot and cubic foot systems were used simultaneously in Sindh for measurements.

Knowledge of Geometry

Renowned American-Sindhi researcher Parveen Talpur, in her book "Evidence of Geometry in the Indus Valley Civilization from 2500 to 1500 BCE," has demonstrated that the people of Mohenjo-Daro were familiar with geometry. She analyzed each character of the Mohenjo-Daro script to prove that they were designed according to geometric patterns. (27)(28)

Invention of Trade Seals

One of the most successful creations of the heirs of the Indus Civilization is the seals found in Mohenjo-Daro, Harappa, and other cities. So many seals have been

found that it can be inferred that every individual had their own seal. These seals were made of steatite. (29)

Boats and Navigation

Before the discovery of the Indus Civilization, it was believed that the Phoenicians invented navigation. However, after the excavations of ancient sites in Sindh and the revelation of the Indus Civilization's wonders, experts had to revise this opinion. Navigation in Sindh predates the Phoenicians by a significant margin. During the Indus Civilization, "Sutkagen Dor" on the Makran coast near the Dasht River and "Sutkagen Koh" in the Shadikarondi Valley were major navigation centers between Sindh and Iraq, where ships would anchor. At the same time, excavations in the city of Lothal on the banks of the Gulf of Khambhat revealed a dockyard for building ships, constructed entirely of baked bricks. (30)

Muslin Cloth

Inscriptions from Babylon and Nineveh mention Sindh's fine muslin cloth, referred to as "Sindhu." This indicates that Sindh's artisans produced muslin cloth, sold it abroad to earn money, or bartered it for goods. The cloth was called "Sindhu" (muslin) after the Indus River. (31) (32)

Language and Script

Before the excavation of ancient sites in Sindh, experts believed that the art of writing was first invented by the people of the Tigris and Euphrates, followed by the Egyptians and others. However, after the excavation of Mohenjo-Daro, it was proven that 7,500 years ago, the heirs of the Indus Civilization had a writing system. Around 800 seals and amulets with symbols, images, and script have been found in Mohenjo-Daro and Harappa, representing the script of the Sindhi language at that time. (33) (34)

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